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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10'024,160	12'18/2001	Frank Werfel	GK-GEY-1079 DIV.500350.	4584

26418 7590 05/23/2003

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EXAMINER

MULLINS, BURTON S

ART UNIT PAPER NUMBER

2834

DATE MAILED: 05/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/024,160

Applicant(s)

WERFEL ET AL.

Examiner

Burton S. Mullins

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 56-67 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 56-63 and 65-67 is/are rejected.
- 7) ☒ Claim(s) 64 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/581,490.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 18 December 2001 has been considered by the examiner.

Claim Rejections - 35 USC § 112

2. Claim 59 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Does "pointing to the axis of rotation" mean that the normals are parallel to the axis of rotation or perpendicular thereto?
3. Claim 67 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Recitation "the normals...are directed vertical to said shaft" is vague and indefinite. Does this mean the normals are oriented parallel to a vertically-oriented shaft?

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 56 is rejected under 35 U.S.C. 102(b) as being anticipated by Salama et al. (US 5,306,697). Salama teaches a grain-oriented Y-Ba-Cu-O superconducting material formed by

melting (c.3, lines 15-27) which is made of, inter alia, $Y_1Ba_2Cu_3O_{6+\delta}$ where δ has a number value of from about 0.1 to about 1.0 (c.3, line 58-c.4, line 1). Salama's superconducting material thus falls within the range claimed by applicant. Regarding applicant's recitation of a magnetic bearing in the preamble, this limitation has not been given patentable weight since it does not breathe life and meaning into the claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 57-63, 65 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salama in view of Rigney (US 5,270,601). Salama does not teach a magnetic bearing including a permanent magnet moveable relative to a superconductor.

Rigney teaches a superconducting magnetic bearing comprising: a first part or permanent magnet 12 mounted relative to a second part 14 of Type II superconducting material containing an anisotropic crystal structure (e.g, yttrium-barium-copper-oxygen compound) comprising plural crystal granules 19 arranged in current-carrying planes (not numbered, see Fig.2) along with permanent magnet granules 17; with normals of the current-carrying planes pointing to the first part (Fig.2).

It would have been obvious to modify Rigney's superconducting bearing and provide a superconductor per Salama since the latter's 123 class of high temperature superconductors would have been desirable to carry high current loads and entrap strong magnetic fields while eliminating the need for complex thermal insulations and helium-recycling systems in previous superconductors (c.2, lines 16-41).

Regarding claim 59, although Rigney does not teach that the first part 12 comprises plural magnets, it would have been obvious to one having ordinary skill in the art to modify Rigney and provide plural magnets because it has been held that duplicating parts of an invention involve ordinary skill. *St. Regis Paper Co. v Bemis Co.* 193 USPQ 8 (7th Cir. 1977).

Regarding claim 60, the claimed range would be inherent to Rigney and Salama.

Regarding claim 61, the granules in Rigney are 2-3 mm in size (c.3, lines 68).

Regarding claim 63, the arrangement of Rigney can comprise a bearing with the first part 12 the rotating "rotor" and the second part 14 the "stator."

Regarding claim 65, a housing would be inherent in Rigney and Salama to enclose the superconductor and bearing structure.

8. Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over Salama in view of Rigney as applied to claim 65 above, further in view of Ohnishi (US 5,350,958). Salama and Rigney do not teach a housing with an evacuated pressure of less than 10^{-4} Pa or filled with a gas, e.g. helium, of molecular weight less than 28.

Ohnishi teach that evacuated, cryogenic housings filled with nitrogen or helium gas are conventional in superconducting rotating machines to maintain the superconductive state (c.1, lines 43-46).

It would have been obvious to one having ordinary skill to provide the superconducting machine of Salama and Rigney with an evacuated housing filled with helium gas per Ohnishi since this would have been desirable to maintain the machine in a superconductive state.

Allowable Subject Matter

9. Claim 64 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The prior art of record does not teach the claimed magnetic bearing wherein the first part having permanent magnetic characteristics is connected with a polygon mirror.

Conclusion

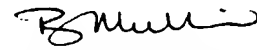
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 305-7063. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are 305-1341 for regular communications and 305-1341 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.



Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm
May 20, 2003